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APPENDIX E

STUDY QUESTIONNAIRE

Section A.	Questions to Determine Eligibility of Household for Study
Section B.	Questions to Assess Eligibility of Child Between the Ages of Six Months and Four Years
Section C.	Main Household Questionnaire
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KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION A: QUESTIONS TO DETERMINE ELIGIBILITY OF HOUSEHOLD FOR STUDY

DWELLING ID - ☐☐☐ - ☐☐ 1

ROUND # (Round: PI IN 02, 06, 12, 18, 24)

DATE ☐☐ - ☐☐ - ☐☐ 6
m m d d y y

INTERVIEWER INITIALS ☐☐ 12

Name of Respondent: _____

A. Do you currently have any definite plans to move? ☐ 14

0 = no 1 = yes 9 = don't know

IF YES, When: _____

IF YES HOUSEHOLD IS INELIGIBLE. EXPLAIN WHY AND END CONVERSATION.

B. How many children between the ages of 6 months and four live in your home? ☐☐ 15

IF NONE, HOUSEHOLD IS INELIGIBLE. EXPLAIN WHY AND END CONVERSATION.

12/4/92

KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION B: QUESTIONS TO ASSESS ELIGIBILITY OF CHILD BETWEEN THE AGES OF SIX MONTHS AND FOUR YEARS

DWELLING ID - ROUND # ☐☐☐-☐☐ 1
(Round: PI IN 02, 06, 12, 18, 24)

DATE ☐☐-☐☐-☐☐ 6
m m d d y y

INTERVIEWER INITIALS ☐☐ 12

Some children are not eligible for this study because they are not likely to be exposed to lead in the same way as other children. I'd like to ask you a few more questions to find out if your children are eligible.

Let's start with the youngest child who is at least 6 months old:

Name: _____

Date of Birth: ☐☐-☐☐-☐☐ 14
m m d d y y

A. Does (name) _____ have a physical disability or illness that limits his/her mobility?

0 = no 1 = yes 9 = unknown ☐ 20

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS TO 4 YEARS OF AGE, EXPLAIN THAT THE HOUSEHOLD IS INELIGIBLE AND END THE INTERVIEW.

B. Does (name) _____ have sickle cell disease?

0 = no 1 = yes 9 = unknown ☐ 21

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS TO 4 YEARS OF AGE EXPLAIN THAT THE HOUSEHOLD IS INELIGIBLE AND END THE INTERVIEW.

12/4/92

DWELLING ID - ROUND ☐☐☐-☐☐

C. Have you ever been told by a health professional that (name)_____ is moderately or severely mentally retarded?

0 = no 1 = yes 9 = unknown ☐ 22

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS. TO 4 YEARS OF AGE EXPLAIN THAT THE HOUSEHOLD IS INELIGIBLE AND END THE INTERVIEW.

Now I have a few questions about (name)_____ 's activities.

D. On an average weekday between the time (name)_____ wakes up and the time he/she goes to bed at night, how many hours does he/she spend at the following locations? **(Round fractions to the nearest hour)**

a. Inside this house? ☐☐ 23

b. Outdoors around this house, for example in the yard or on the porch? ☐☐ 25

Sum: _____

c. In a park or playground? ☐☐ 27

d. Inside or outside another building, such as a day care center, a babysitter's, friend's or relative's house? ☐☐ 29

E. On an average weekend day between the time (name)_____ wakes up and the time he/she goes to bed at night, how many hours does he/she spend at the following locations? **(Round fractions to the nearest hour)**

a. Inside this house? ☐☐ 31

b. Outdoors around this house, for example in the yard or on the porch? ☐☐ 33

Sum: _____

c. In a park or playground ☐☐ 35

d. Inside or outside another building, such as a day care center, a babysitter's, friend's or relative's house? ☐☐ 37

DWELLING ID - ROUND ☐☐☐-☐☐

F. In an average month, how many times does (name)_____ sleep away from home at someone else's home? ☐☐ (# times) 39

NOTE: IF THE RESPONDENT PERSON CAN'T ANSWER THE ABOVE TWO QUESTIONS THEN ASK TO SPEAK WITH THE PERSON WHO BEST KNOWS ABOUT THE CHILD'S ACTIVITIES. MAKE A RETURN APPOINTMENT AS NEEDED.

NOTE: ASK IF ANY OF THESE TIME PATTERNS ARE LIKELY TO CHANGE IN THE NEXT THREE MONTHS? _____. (Record yes or no here)

IF YES, EXPLAIN:

IF THE CHILD SPENDS 80 PERCENT OF HIS/HER TIME AT THE HOME, HE/SHE IS ELIGIBLE. ASSIGN CHILD ID: ☐☐. ADMINISTER MAIN HOUSEHOLD QUESTIONNAIRE (SECTION C).

-- IF THERE IS ANOTHER CHILD 6 MOS TO FOUR YEARS OF AGE, THEN ADMINISTER THE CHILD ELIGIBILITY QUESTIONNAIRE (SECTION E).
-- IF THERE IS NO OTHER CHILD 6 MOS TO FOUR YEARS OF AGE, END THIS PART OF THE CONVERSATION AND OBTAIN INFORMED CONSENT. ADMINISTER THE MAIN HOUSEHOLD QUESTIONNAIRE (SECTION C) AND CHILD SUPPLEMENT INTERVIEW (SECTION D).

IF THE CHILD DOES NOT SPEND 80 PERCENT OF HIS/HER TIME AT HOME, HE/SHE IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD IF APPLICABLE.

IF THERE IS NO OTHER CHILD 6 MOS TO FOUR YEARS OF AGE EXPLAIN THAT THE HOUSEHOLD IS INELIGIBLE AND END THE CONVERSATION.

IF INFORMED CONSENT IS OBTAINED, THEN ARRANGE A TIME TO DO THE CHILD AND MAIN HOUSEHOLD QUESTIONNAIRES, THE ENVIRONMENTAL SAMPLING AND SCHEDULE THE BLOOD COLLECTION.

CHECK LIST:

_____ Pre-registration Form

_____ Transportation Needs

_____ Appointment Time

KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION C: MAIN HOUSEHOLD QUESTIONNAIRE

DWELLING ID - ROUND # ☐☐☐-☐☐ 1
(Round: PI IN 02, 06, 12, 18, 24)

DATE ☐☐-☐☐-☐☐ 6
m m d d y y

START TIME (Use Military Time) ☐☐☐☐ 12

INTERVIEWER INITIALS ☐☐ 16

1. How many people live in this household? ☐☐ 18

2. For each person, please tell me that person's first name, age, sex and race. Please start with the oldest member of the household and work down to the youngest.

	First Name	Sex 1=male 2=female	Age children <1 yr = 00	Race see below	
1.	_____	☐	☐☐	☐	20
2.	_____	☐	☐☐	☐	24
3.	_____	☐	☐☐	☐	28
4.	_____	☐	☐☐	☐	32
5.	_____	☐	☐☐	☐	36
6.	_____	☐	☐☐	☐	40
7.	_____	☐	☐☐	☐	44
8.	_____	☐	☐☐	☐	48
9.	_____	☐	☐☐	☐	52
10.	_____	☐	☐☐	☐	56

Code Race As Follows:

1 = Am Indian /Alaska Native
2 = Asian or Pacific Islander
3 = Black/Afr-Am (Non-Hispanic)
4 = White (Non-Hispanic)
5 = Hispanic
7 = Other_____
8 = Refused
9 = Unknown

12/4/92

DWELLING ID - ROUND ☐☐☐-☐☐

☐☐ 6

INTERVIEWER: CODE PERSON # OF RESPONDENT
(from previous page)

3. Do you or another member of this household own this house?

0 = no 1 = yes 9 = unknown ☐ 62

4. How much rent/mortgage does the family pay per month ?

999 = don't know ☐☐☐ 63

5. In the last six months, (or less if you have recently moved to this address), have you or anyone in your household or anyone who occasionally lives in this household, worked at any of the jobs I am about to mention? **(circle job if yes)**

Paint removal including scraping and sanding	Other lead-related industry work
Building demolition	Lead smelter work
Welding	Foundry work
Plumbing	Oil refinery work
Battery manufacturing plant work	Auto body work
Salvage (i.e. batteries/radiators)	Glass work
Home remodelling or renovation	Chemical plant work
Ship building or repair	Sandblasting

0 = no ----------**GO TO Q. 8**
1 = yes
9 = don't know --**GO TO Q. 8**

☐ 66

6. Does the person (do the people) working at these jobs ever come home from work wearing his/her/their work clothes?

0 = no 1 = yes 8 = n/a 9 = don't know ☐ 67

DWELLING ID - ROUND ☐☐☐-☐☐

7. Does the person (do the people) working at these jobs ever have his/her/their work clothes washed here at your home?

   0 = no 1 = yes 8 = N/A 9 = don't know ☐ 67

8. In a typical month, how many times do you or anyone in your household participate in any of the following activities while **at home**?

   a. Remove paint or varnish from furniture in the house? ☐☐ 69

   b. Strip and paint bicycles or cars? ☐☐ 71

   c. Solder pipes or repair plumbing? ☐☐ 73

   d. Solder electric parts or jewelry? ☐☐ 75

   e. Join pieces of stained glass with solder? ☐☐ 77

   f. Paint pictures or jewelry with artist's paint? ☐☐ 79

   g. Glaze pottery or ceramic objects? ☐☐ 81

   h. Perform auto maintenance near the house? ☐☐ 83

   i. Mold lead into fishing sinkers, bullets or other objects? ☐☐ 85
      00 = no 99 = don't know

9. In the last six months, (or less if you have recently moved to this address), have you or anyone else done any remodelling or renovation work on this home that involved the removal of walls or paneling or the removal of paint from walls, floors, windows, porches or other parts of the house by sanding, scraping or any other method?

   0 = no 1 = yes 9 = don't know ☐ 87

DWELLING ID - ROUND ☐☐☐-☐☐

10. Are there any dogs or cats that live inside the house, have access to living areas, and periodically go outside? ☐ 8

0 = no ---------- **GO TO Q. 12**
1 = yes
9 = don't know ----- **GO TO Q. 12**

11. In the last six months, or less if you have recently moved to this address, has the dog or cat scratched or dug in the carpeting, or chewed, or ripped off parts of walls or molding? ☐ 89

0 = no 1 = yes 8 = n/a 9 = don't know

12. In a typical two-week period, how many times are the following activities done in the home?

a. Vacuum carpeted floors? ☐☐.☐ 90

b. Vacuum uncarpeted floors? ☐☐.☐ 93

c. Sweep uncarpeted floors? ☐☐.☐ 96

d. Sweep carpeted floors? ☐☐.☐ 99

e. Wet mop uncarpeted floors? ☐☐.☐ 102

f. Vacuum furniture or dust furniture with a dust cloth? ☐☐.☐ 105

g. Wash window sills? ☐☐.☐ 108

h. Dust window sills with a dust cloth? ☐☐.☐ 111

DWELLING ID - ROUND ☐☐☐-☐☐

13. Do you typically use water from the hot faucet when cooking or preparing drinks for the young child(ren) who live(s) here?

0 = no 1 = yes 8 = n/a 9 = don't know ☐ 114

14. When taking water from your faucets to serve a drink to the young child(ren), which best describes your practice?

1 = Water is taken immediately as faucet is turned on. ☐ 115
2 = Water is <u>sometimes</u> allowed to run at least one minute before being used.
3 = Water is <u>usually</u> allowed to run at least one minute before being used.
4 = Water is <u>always</u> allowed to run at least one minute before being used.
5 = Water is <u>always</u> boiled.
6 = I have no particular pattern.
7 = Other_____.
9 = Don't know.

END TIME: (Household Section) **(Use Military Time)** ☐☐☐☐ 116

GO ON TO CHILD SUPPLEMENT INTERVIEW (SECTION D)

KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION D: CHILD SUPPLEMENT INTERVIEW

DWELLING ID - ROUND # ☐☐☐-☐☐ 1
(Round: PI IN 02, 06, 12, 18, 24)

CHILD ID # ☐☐ 6

DATE ☐☐-☐☐-☐☐ 8
m m d d y y

START TIME (Use Military Time) ☐☐☐☐ 14

INTERVIEWER INITIALS ☐☐ 18

Respondent #: _____ **(From Main Household Listing)**

ASK THESE QUESTIONS OF ONE OF THE PARENTS OR THE CHILD'S GUARDIAN. USE SECTION F FOR EACH ADDITIONAL CHILD SIX MONTHS TO FOUR YEARS OF AGE WHO WAS DETERMINED ELIGIBLE FOR BLOOD LEAD TESTING AND FOR WHOM INFORMED CONSENT WAS OBTAINED FOR BLOOD TESTING.

I would like to ask more questions about each eligible child between the ages of six months and four years. These questions relate to the factors which can affect lead exposure and will help us interpret the blood lead tests.

Let's talk about (name) _____

Date of birth: ☐☐-☐☐-☐☐ 20
m m d d y y
(INTERVIEWER RECORDS THIS FROM PAGE 2 OF ELIGIBILITY FORM)

1. How often does (name) _____ put his/her fingers or fist in his/her mouth?

☐ 26

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

12/4/92

Dwelling ID - ROUND# ☐☐☐-☐☐☐☐

Child ID#

2. How often does (name)_____ put things such as toys pencils, crayons or a favorite blanket into his/her mouth? ☐ 27

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other_____
9 = don't know

3. How often have you seen (name)_____ put dirt or sand in his/her mouth? ☐ 28

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

4. How often have you seen (name)_____ put paint chips into his/her mouth? ☐ 29

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

5. Is any of (name)_____'s food stored in the original cans after being opened, for example, tomato products, milk or fruit juice? ☐ 30

0 = no 1 = yes 9 = unknown

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

6. Is (name) _____'s food or drink ever stored or served in home made or imported glazed pottery?

0 = no 1 = yes 9 = unknown ☐ 31
(if Yes, ask to see the pottery and advise care-giver)

7. Is water from the faucet (name) _____'s main source of water for drinking and for mixing drinks such as frozen or powdered fruit drinks or powdered milk?

0 = no 1 = yes 9 = unknown ☐ 32
2 = other _____

8. How many ounces of water or drinks made with water taken from a household faucet does (name) _____ drink on a typical day?

99 = don't know ☐☐ 33

9. How many ounces of each of the following types of milk does (name) _____ drink during a typical day?
(round fractions to the nearest ounce)

a. Breast milk 00 = none 99 = don't know ☐☐ 35

b. Cow's milk (all types: ie., whole, 1%, 2%, skim)
00 = none 99 = don't know ☐☐ 37

c. Formula 00 = none 99 = don't know ☐☐ 39

d. Condensed milk 00 = none 99 = don't know ☐☐ 41

e. Powdered milk mixed with water
00 = none 99 = don't know ☐☐ 43

f. Other type of milk _____
00 = none 99 = don't know ☐☐ 45

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

10. How many times a week does (name)_____ eat the following foods?

a) Green vegetables 00 = none 99 = don't know ☐☐

b) Fried foods 00 = none 99 = don't know ☐☐

c) Foods cooked with fatback or hamhock 00 = none 99 = don't know ☐☐

11. Where does (name)_____ eat most of his/her meals when he/she eats here? ☐

1 = sitting at a table
2 = sitting on the floor
3 = sitting on the sofa or upholstered chair
7 = other _____
9 = don't know

12. During the last three months, did (name)_____ physician tell you that he/she had or continues to have anemia? ☐

0 = no 1 = yes 8 = no visit in 3 mo. 9 = don't know

13. Do you give (name)_____ Feosol, Poly Vi Sol, or another iron supplement as treatment for iron deficiency? ☐

0 = no ---------- **GO TO Q.15**
1 = yes
2 = yes, Vitamins with iron
3 = yes, formula with iron
4 = yes, combination (**list**_____)
8 = not applicable ---------- **GO TO Q.15**
9 = don't know ---------- **GO TO Q.15**

14. **Ask to see the container and ask:**

How much do you give (name)_____ per day?

Record name of supplement: _____

dropper fills per day: ☐.☐

teaspoons per day: ☐.☐

other amount, **state type:**_____ ☐.☐
(none = 0.0 n/a = 8.8 don't know = 9.9)

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

15. Has (name)_____ ever been tested for lead before? ☐ 65

0 = no ---------- **GO TO Q.21**
1 = yes
9 = don't know ------- **GO TO Q.21**

16. When was the last test for lead done?

DATE ☐☐/☐☐ 66
m m y y

88/88 for n/a 99/99 for unknown

17. Where was the last test for lead done?

_____

18. Was blood taken from (name)_____'s arm or finger when the last lead test was done? ☐ 67

1 = arm
2 = finger
8 = n/a
9 = don't know

19. Did (name)_____ ever receive chelation therapy as treatment for lead poisoning? ☐ 68

0 = no ----------**GO TO Q. 21**
1 = yes
8 = n/a
9 = don't know ------ **GO TO Q. 21**

20. What is the month and year of (name)_____'s most recent chelation treatment?

DATE ☐☐/☐☐ 69
m m y y

88/88 for n/a 99/99 for unknown

21. Where does (name)_____ go for medical care?

Clinic Name: _____

Doctor's Name: _____

Dwelling ID - ROUND# ☐☐☐-☐☐☐☐

Child ID#

22. Who is (name)_____'s primary caregiver? ☐ 73

1 = mother
2 = father
3 = aunt or uncle
4 = grandparent, great aunt or uncle, great grandparent
5 = foster parent or guardian
6 = shared by _____
7 = other_____

23. Which is (name)_____'s favorite window? ☐ 74

Floor Level
0 = Basement 1 = 1st Floor 2 = 2nd Floor 3 = 3rd Floor

☐ 75

Room Location
F = Front M = Middle R = Rear E = Entrance

☐☐ 76

Room Usage

LR = Living Rm	**DR = Dining Room**	**KI = Kitchen**
BR = Bedroom	**MB = Master BR**	**CL = Clubroom**
BA = Bathroom	**PO = Porch**	**IE = Inside Entrance/Vestibule**
SA = Sleeping Area	**HA = Hall**	**OT = Other**

☐☐ 78

WINDOW ORIENTATION

NO = North	**NE = Northeast**	**NW = Northwest**
SO = South	**SE = Southeast**	**SW = Southwest**
EA = East	**WE = West**	

☐ 80

WINDOW LOCATION
R = Right L = Left C = Center S = Single O = Other

24. Does (name)_____ ever put his/her mouth on the window sill or wall while playing at this favorite window? ☐ 81

0 = no 1 = yes 9 = don't know

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

25. Which is (name)_____'s favorite play area in the house?

Floor Level ☐ 82
0 = Basement **1 = 1st Floor** **2 = 2nd Floor** **3 = 3rd Floor**

Room Location ☐ 83
F = Front **M = Middle** **R = Rear** **E = Entrance**

Room Usage ☐☐ 84

LR = Living Rm	**DR = Dining Room**	**KI = Kitchen**
BR = Bedroom	**MB = Master BR**	**CL = Clubroom**
BA = Bathroom	**PO = Porch**	**IE = Inside Entrance/Vestibule**
SA = Sleeping Area	**HA = Hall**	**OT = Other**

26. Which room is (name)_____'s bedroom?

Enter Room Letter from diagram (A, B, C, or D, etc) ☐ 86

CURRENT AND PAST RESIDENCE INFORMATION

Next I'm going to ask you to tell me a little about the places (name)_____ has lived since he/she was born including this house.

27. Current Residence: from ☐☐/☐☐ 87
(m m / y y)

to ☐☐/☐☐ 91
(m m / y y)

Enter Code: ☐ 95

1 = Public Housing
2 = Modern Housing (includes older housing which has been gut rehabbed or had major renovation)
3 = Older Housing with no or little peeling paint on the inside or outside
4 = Older Housing with lots of peeling paint on the inside or outside

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

CURRENT AND PAST RESIDENCE INFORMATION (continued)

-- Most Previous Residence: (the one just before this one)

from ☐☐/☐☐ (m m / y y) 96

to ☐☐/☐☐ (m m / y y) 100

Enter Code: 1, 2, 3, or 4 ☐ 104

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 105

to ☐☐/☐☐ (m m / y y) 109

Enter Code: 1, 2, 3, or 4 ☐ 113

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 119

to ☐☐/☐☐ (m m / y y) 118

Enter Code: 1, 2, 3, or 4 ☐ 122

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 123

to ☐☐/☐☐ (m m / y y) 127

Enter Code: 1, 2, 3, or 4 ☐ 131

END TIME: (Supplemental Child Section) ☐☐☐☐ 132
(Use Military Time)

GO ON TO SECTION E: QUESTIONS TO ASSESS ELIGIBILITY OF ADDITIONAL CHILDREN IN THE HOUSEHOLD

KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION E: QUESTIONS TO ASSESS ELIGIBILITY: ADDITIONAL CHILD QUESTIONNAIRE

DWELLING ID - ROUND # ☐☐☐-☐☐

(Round: PI IN 02, 06, 12, 18, 24)

DATE ☐☐-☐☐-☐☐ (m m - d d - y y)

INTERVIEWER INITIALS ☐☐

Some children are not eligible for this study because they are not likely to be exposed to lead in the same way as other children. I'd like to ask you a few more questions to find out if your children are eligible.

Let's start with the next oldest child who is at least 6 months old:

Name: _____

Date of Birth: ☐☐-☐☐-☐☐ (m m - d d - y y)

A. Does (name)_____ have a physical disability or illness that limits his/her mobility?

0 = no 1 = yes 9 = unknown ☐

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS TO 4 YEARS OF AGE END THE INTERVIEW.

B. Does (name)_____ have sickle cell disease?

0 = no 1 = yes 9 = unknown ☐

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS TO 4 YEARS OF AGE END THE INTERVIEW.

12/4/92

DWELLING ID - ROUND # ☐☐☐-☐☐

C. Have you ever been told by a health professional that (name)_____ is moderately or severely mentally retarded?

0 = no 1 = yes 9 = unknown ☐ 23

IF YES, THE CHILD IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD USING SECTION E. IF THERE IS NO OTHER CHILD 6 MOS. TO 4 YEARS OF AGE END THE INTERVIEW.

Now I have a few questions about (name)_____'s activities.

D. On an average weekday between the time (name)_____ wakes up and the time he/she goes to bed at night, how many hours does he/she spend at the following locations? **(Round fractions to the nearest hour)**

a. Inside this house (include naptime) ☐☐ 23

b. Outdoors around this house, for example in the yard or on the porch ☐☐ 25

SUM:_____

c. In a park or playground ☐☐ 27

d. Inside or outside another building, such as a day care center, a babysitter's, friend's or relative's house? ☐☐ 29

DWELLING ID - ROUND # ☐☐☐-☐☐

E. On an average weekend day between the time (name)_____ wakes up and the time he/she goes to bed at night, how many hours does he/she spend at the following locations? **(Round fractions to the nearest hour)**

a. Inside this house (include naptime) ☐☐ 31

b. Outdoors around this house, for example in the yard or on the porch ☐☐ 33

SUM:_____

c. In a park or playground ☐☐ 35

d. Inside or outside another building, such as a day care center, a babysitter's, friend's or relative's house? ☐☐ 37

F. In an average month, how many times does (name)_____ sleep away from home at someone else's home? ☐☐ 39 **(# times)**

NOTE: IF THE RESPONDENT PERSON CAN'T ANSWER THE ABOVE TWO QUESTIONS THEN ASK TO SPEAK WITH THE PERSON WHO BEST KNOWS ABOUT THE CHILD'S ACTIVITIES. MAKE A RETURN APPOINTMENT AS NEEDED.

NOTE: ASK IF ANY OF THESE TIME PATTERNS ARE LIKELY TO CHANGE IN THE NEXT THREE MONTHS? _____. (Record yes or no here)

IF YES, EXPLAIN:

DWELLING ID - ROUND # ☐☐☐-☐☐

IF THE CHILD SPENDS 80 PERCENT OF HIS/HER TIME AT THE HOME, HE/SHE IS ELIGIBLE. ASSIGN CHILD ID: ☐☐.

-- IF THERE IS ANOTHER CHILD 6 MOS TO FOUR YEARS OF AGE, THEN DETERMINE THAT CHILD'S ELIGIBILITY USING THE ADDITIONAL CHILD ELIGIBILITY QUESTIONNAIRE (SECTION E) AND CHILD SUPPLEMENTAL INTERVIEW (SECTION D FOR FIRST ELIGIBLE CHILD AND SECTION F FOR ALL ADDITIONAL ELIGIBLE CHILDREN).

-- IF THERE IS NO OTHER CHILD 6 MOS TO FOUR YEARS OF AGE, END THIS PART OF THE CONVERSATION AND OBTAIN INFORMED CONSENT. ADMINISTER THE CHILD SUPPLEMENT INTERVIEW (SECTION F).

-- IF THE CHILD DOES NOT SPEND 80 PERCENT OF HIS/HER TIME AT HOME, HE/SHE IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD'S ELIGIBILITY USING THE ADDITIONAL CHILD ELIGIBILITY QUESTIONNAIRE (SECTION E). IF THERE IS NO OTHER CHILD 6 MOS TO FOUR YEARS OF AGE END THE CONVERSATION.

IF THE CHILD DOES NOT SPEND 80 PERCENT OF HIS/HER TIME AT HOME, HE/SHE IS INELIGIBLE. ASK ABOUT THE NEXT OLDEST CHILD, IF APPLICABLE.

IF THERE IS NO OTHER CHILD 6 MOS TO FOUR YEARS OF AGE, END THE CONVERSATION.

IF INFORMED CONSENT IS OBTAINED, THEN ARRANGE A TIME TO DO THE CHILD AND MAIN HOUSEHOLD QUESTIONNAIRES, THE ENVIRONMENTAL SAMPLING, AND SCHEDULE THE BLOOD COLLECTION.

CHECK LIST:

_____ Pre-registration Form

_____ Transportation Needs

_____ Appointment Time

KENNEDY KRIEGER INSTITUTE REPAIR AND MAINTENANCE STUDY

SECTION F: ADDITIONAL CHILD SUPPLEMENT

DWELLING ID - ROUND # ☐☐☐-☐☐ 1
(Round: PI IN 02, 06, 12, 18, 24)

CHILD ID # ☐☐ 6

DATE ☐☐-☐☐-☐☐ 8
m m d d y y

START TIME (Use Military Time) ☐☐☐☐ 14

INTERVIEWER INITIALS ☐☐ 18

Respondent #: _____ **(From Main Household Listing)**

ASK THESE QUESTIONS OF ONE OF THE PARENTS OR THE CHILD'S GUARDIAN. USE A SEPARATE FORM FOR EACH CHILD SIX MONTHS TO FOUR YEARS OF AGE WHO WAS DETERMINED ELIGIBLE FOR BLOOD LEAD TESTING AND FOR WHOM INFORMED CONSENT WAS OBTAINED FOR BLOOD TESTING.

Now I'd like to ask the same questions about (name)_____
These questions relate to the factors which can affect lead exposure and will help us interpret the blood lead tests.

Let's talk about (name)_____

Date of birth: ☐☐-☐☐-☐☐ 20
(INTERVIEWER RECORDS THIS FROM PAGE 2 OF ELIGIBILITY FORM)
m m d d y y

1. How often does (name)_____ put his/her fingers or fist in his/her mouth?

☐ 26

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

12/4/92

Dwelling ID - ROUND# ☐☐☐-☐☐☐☐

Child ID#

2. How often does (name)_____ put things such as toys pencils, crayons or a favorite blanket into his/her mouth? ☐

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other_____
9 = don't know

3. How often have you seen (name)_____ put dirt or sand in his/her mouth? ☐ 28

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

4. How often have you seen (name)_____ put paint chips into his/her mouth? ☐ 29

0 = never
1 = daily
2 = at least once a day, but not everyday of the week
3 = less than one day a week
4 = less than one day a month
5 = never observed this activity
7 = other _____
9 = don't know

5. Is any of (name)_____'s food stored in the original cans after being opened, for example, tomato products, milk or fruit juice? ☐ 30

0 = no 1 = yes 9 = unknown

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

6. Is (name)_____'s food or drink ever stored or served in home made or imported glazed pottery?

0 = no 1 = yes 9 = unknown ☐ 31
(if Yes, ask to see the pottery and advise care-giver)

7. Is water from the faucet (name)_____'s main source of water for drinking and for mixing drinks such as frozen or powdered fruit drinks or powdered milk?

0 = no 1 = yes 9 = unknown ☐ 32
2 = other _____

8. How many ounces of water or drinks made with water taken from a household faucet does (name)_____ drink on a typical day?

99 = don't know ☐☐ 33

9. How many ounces of each of the following types of milk does (name)_____ drink during a typical day?
(round fractions to the nearest ounce)

a. Breast milk 00 = none 99 = don't know ☐☐ 35

b. Cow's milk (all types: ie., whole, 1%, 2%, skim)
00 = none 99 = don't know ☐☐ 37

c. Formula 00 = none 99 = don't know ☐☐ 39

d. Condensed milk 00 = none 99 = don't know ☐☐ 41

e. Powdered milk mixed with water
00 = none 99 = don't know ☐☐ 43

f. Other type of milk _____
00 = none 99 = don't know ☐☐ 45

Dwelling ID - ROUND# ☐☐☐-☐☐☐☐

Child ID#

10. How many times a week does (name)_____ eat the following foods?

a) Green vegetables 00 = none 99 = don't know ☐☐ 4

b) Fried foods 00 = none 99 = don't know ☐☐ 4

c) Foods cooked with fatback or hamhock ☐☐ 51
00 = none 99 = don't know

11. Where does (name)_____ eat most of his/her meals when he/she eats here? ☐ 5

1 = sitting at a table
2 = sitting on the floor
3 = sitting on the sofa or upholstered chair
7 = other _____
9 = don't know

12. During the last three months, did (name)_____ physician tell you that he/she had or continues to have anemia? ☐ 5

0 = no 1 = yes 8 = no visit in 3 mo. 9 = don't know

13. Do you give (name)_____ Feosol, Poly Vi Sol, or another iron supplement as treatment for iron deficiency? ☐ 55

0 = no ---------- **GO TO Q.15**
1 = yes
2 = Vitamins with iron
3 = formula with iron
4 = combination **(list**_____**)**
8 = not applicable
9 = don't know

14. **Ask to see the container and ask:**

How much do you give (name)_____ per day?

Record name of supplement: _____

dropper fills per day: ☐.☐ 54

teaspoons per day: ☐.☐ 58

other amount, **state type:**_____ ☐.☐ 60
(none = 0.0 n/a = 8.8 don't know = 9.9)

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

15. Has (name)_____ ever been tested for lead before? ☐ 62

0 = no ---------- **GO TO Q.21**
1 = yes
9 = don't know ------- **GO TO Q.21**

16. When was the last test for lead done?

DATE ☐☐/☐☐ 63
m m y y

88/88 for n/a 99/99 for unknown

17. Where was the last test for lead done?

_____

18. Was blood taken from (name)_____'s arm or finger when the last lead test was done? ☐ 67

1 = arm
2 = finger
8 = n/a
9 = don't know

19. Did (name)_____ ever receive chelation therapy as treatment for lead poisoning? ☐ 68

0 = no ----------**GO TO Q. 21**
1 = yes
8 = n/a
9 = don't know ------ **GO TO Q. 21**

20. What is the month and year of (name)_____'s most recent chelation treatment?

DATE ☐☐/☐☐ 69
m m y y

88/88 for n/a 99/99 for unknown

21. Where does (name)_____ go for medical care?

Clinic Name: _____

Doctor's Name: _____

Dwelling ID - ROUND# ☐☐☐-☐☐☐☐

Child ID#

22. Who is (name)_____'s primary caregiver? ☐ 73

1 = mother
2 = father
3 = aunt or uncle
4 = grandparent, great aunt or uncle, great grandparent
5 = foster parent or guardian
6 = shared by _____
7 = other_____

23. Which is (name)_____'s favorite window?

Floor Level ☐ 74
0 = Basement 1 = 1st Floor 2 = 2nd Floor 3 = 3rd Floor

Room Location ☐ 75
F = Front M = Middle R = Rear E = Entrance

Room Usage ☐☐ 76

LR = Living Rm	**DR = Dining Room**	**KI = Kitchen**
BR = Bedroom	**MB = Master BR**	**CL = Clubroom**
BA = Bathroom	**PO = Porch**	**IE = Inside Entrance/Vestibule**
SA = Sleeping Area	**HA = Hall**	**OT = Other**

WINDOW ORIENTATION ☐☐ 78

NO = North	**NE = Northeast**	**NW = Northwest**
SO = South	**SE = Southeast**	**SW = Southwest**
EA = East	**WE = West**	

WINDOW LOCATION ☐ 80
R = Right L = Left C = Center S = Single O = Other

24. Does (name)_____ ever put his/her mouth on the window sill or wall while playing at this favorite window?

0 = no 1 = yes 9 = don't know ☐ 81

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

25. Which is (name)_____'s favorite play area in the house?

Floor Level ☐ 82
0 = Basement 1 = 1st Floor 2 = 2nd Floor 3 = 3rd Floor

Room Location ☐ 83
F = Front M = Middle R = Rear E = Entrance

Room Usage ☐☐ 84
LR = Living Rm DR = Dining Room KI = Kitchen
BR = Bedroom MB = Master BR CL = Clubroom
BA = Bathroom PO = Porch IE = Inside Entrance/Vestibule
SA = Sleeping Area HA = Hall OT = Other

26. Which room is (name)_____'s bedroom?

Enter Room Letter from diagram (A, B, C, or D, etc) ☐ 86

CURRENT AND PAST RESIDENCE INFORMATION

Next I'm going to ask you to tell me a little about the places (name)_____ has lived since he/she was born including this house.

27. Current Residence: from ☐☐/☐☐ 87
m m y y

to ☐☐/☐☐ 91
m m y y

Enter Code: ☐ 95

1 = Public Housing
2 = Modern Housing (includes older housing which has been gut rehabbed or had major renovation)
3 = Older Housing with no or little peeling paint on the inside or outside
4 = Older Housing with lots of peeling paint on the inside or outside

Dwelling ID - ROUND# ☐☐☐-☐☐

Child ID# ☐☐

CURRENT AND PAST RESIDENCE INFORMATION (continued)

-- Most Previous Residence: (the one just before this one)

from ☐☐/☐☐ (m m / y y) 99

to ☐☐/☐☐ (m m / y y) 103

Enter Code: 1, 2, 3, or 4 ☐ 104

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 108

to ☐☐/☐☐ (m m / y y) 109

Enter Code: 1, 2, 3, or 4 ☐ 113

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 114

to ☐☐/☐☐ (m m / y y) 118

Enter Code: 1, 2, 3, or 4 ☐ 122

-- Next Most Previous Residence: (the one before that)

from ☐☐/☐☐ (m m / y y) 123

to ☐☐/☐☐ (m m / y y) 127

Enter Code: 1, 2, 3, or 4 ☐ 131

END TIME: (Supplemental Child Section) ☐☐☐☐ 132
(Use Military Time)

COMPLETE THIS SECTION FOR ALL ADDITIONAL ELIGIBLE CHILDREN IN THE HOUSEHOLD

Kennedy Krieger Institute R&M Study

INSTRUCTION GUIDE FOR ADMINISTERING THE STUDY QUESTIONNAIRE

Field Training Part II
December 4, 1992

TABLE OF CONTENTS

Kennedy Krieger Institute Repair and Maintenance Study
INSTRUCTIONS FOR ADMINISTERING THE STUDY QUESTIONNAIRE

1.0 Purpose

The purpose of the study questionnaire is to confirm the household and child information which was obtained during the enrollment phase of the study. Administering the questionnaire also will allow additional information to be captured, such as occupations and hobbies of adults living in the household, and the eating and cleaning habits of the family. This data, in conjunction with the house diagram will be used to determine final eligibility of the household and child(ren) and aid in the interpretation of blood lead results.

2.0 Elements of a Completed Questionnaire

The completed questionnaire package for each house will consist of the following:

1. Fully answered Section A: **QUESTIONS TO DETERMINE ELIGIBILITY OF HOUSEHOLD FOR STUDY**
2. Fully answered Section B: **QUESTIONS TO ASSESS ELIGIBILITY OF CHILD BETWEEN THE AGES OF SIX MONTHS AND FOUR YEARS**
3. Fully answered Section C: **MAIN HOUSEHOLD QUESTIONNAIRE**
4. Fully answered Section D: **CHILD SUPPLEMENT**
5. Fully answered Section E: **QUESTIONS TO ASSESS ELIGIBILITY: ADDITIONAL CHILD QUESTIONNAIRE** (when applicable)
6. Fully answered Section F: **ADDITIONAL CHILD SUPPLEMENT** (when applicable)

3.0 List of Supplies for Administering the Questionnaire Package

The following is a list of supplies which are needed to successfully complete the Questionnaire Package:

1. Adequate number of **QUESTIONS TO DETERMINE ELIGIBILITY OF HOUSEHOLD FOR STUDY** (Section A of Questionnaire)
2. Adequate number of **QUESTIONS TO ASSESS ELIGIBILITY OF CHILD BETWEEN THE AGES OF SIX MONTHS AND FOUR YEARS** (Section B of Questionnaire)
3. Adequate number of **MAIN HOUSEHOLD QUESTIONNAIRE** (Section C of Questionnaire)
4. Adequate number of **CHILD SUPPLEMENT** (Section D of Questionnaire)
5. Adequate number of **QUESTIONS TO ASSESS ELIGIBILITY: ADDITIONAL CHILD QUESTIONNAIRE** (Section E of Questionnaire)
6. Adequate number of **ADDITIONAL CHILD SUPPLEMENT** (Section F of Questionnaire)
7. Pens and pencils with erasers
8. Clipboards
9. Instructions for administering the questionnaire

4.0 General Rules and Procedures

Rule 1: Follow the instructions to the interviewer which are found typed in **CAPITAL LETTERS AND IN BOLD PRINT.** The instructions apply to the question which immediately precedes the set of instructions.

Rule 2: Record start and end time for each section of the Questionnaire using a 24 hour clock, otherwise known as military time. For example, if the interviewer begins a section of the questionnaire at 2:30 PM, the recorded start time would be 1430.

Rule 3: Listen carefully to the respondent to ensure that the answers being given are consistent and make sense. It may be necessary to "probe" the respondent, in other words, to repeat the question, or to slightly rephrase the question, or to ask a multi-part question one part at a time.

Rule 4: Upon completion of all applicable sections of the questionnaire, and before leaving the house, check to make sure that the Dwelling Unit I.D. and Round # have been filled in at the top of every page, and that all questions and all applicable sections of the questionnaire have been completed. You will also need to fill in the Child I.D. on applicable sections of the Questionnaire (sections D and F). Be sure that a signed Informed Consent Form has been obtained for every eligible child in the home.

5.0 Instructions for Executing Specific Questions

SECTION A: Household Eligibility

Question A:

Question A was asked as part of the pre-enrollment and enrollment home visits. The homes to be visited in this campaign did not have plans to move at the time of our previous home visits. Asking Question A at this time will either confirm that a family plans to stay in the dwelling, or show that a family's plans have changed since our most recent home visit. "**IF YES,** When:_____" is asked to determine how firm the respondent's intention to relocate really is.

Question B:

Question B was asked as part of the pre-enrollment and enrollment home visits. The homes to be visited for collection campaigns had at least one (1) child of eligible age at the time of our previous home visits. Asking Question B at this time will confirm that an eligible child still resides at the home, and inform us of any additional children of eligible age that may have been born or otherwise come to reside at the dwelling.

5.0 **Instructions for Executing Specific Questions, Con't.**
The names and dates of birth (DOB) of eligible children are part of the Pre Enrollment database, and will be included with the field materials for each home visit, to the extent possible.

SECTION B: Child Eligibility (1)

Questions A, B, C:
Some children will not be eligible for this study because they are not likely to be exposed to lead in the same way as other children. These questions screen for three of the primary conditions which would disqualify a child from participation in the Study.
Be sure to follow the **INSTRUCTIONS TO THE INTERVIEWER** which follow each of these questions; if the youngest child is deemed ineligible by a positive response to any of these questions, ask about the next youngest child using Section E: Eligibility of Additional Child Questionnaire. If there is no other child of eligible age, diplomatically explain that the household is not currently eligible. At some point in the future we may come back to enroll this household because another family dropped out of the study, or because of other unforseen circumstances. Thank the respondent and other family members for their time.

Questions D, E, F:
Because this Study will attempt to correlate a child's blood lead measurements with measurements of lead in household dust, soil, and water from the child's primary residence, it is important to know that the child spends most of his or her time in and around the primary residence. These three questions will give us a good indication of the amount of time a child spends in and around his primary residence.

Questions D, E: (con't)
Add together the amount of hours indicated in answer to part "a" and "b" of these questions. Use the line for **SUM:**____ which is provided on the questionnaire. This will tell us the total number of hours the child spends per day in and around the primary residence. Remember to check that the total number of hours accounted for in these questions make sense - for instance, is the child only getting 2 hours of sleep per day? These are multi-part questions and may have to be asked one part at a time, with probing from the interviewer. For instance, the interviewer may want to ask what time the child wakes up in the morning and what time the child goes to bed at night, calculate the number of waking hours, and then discuss with the respondent how many of those waking hours are spent in the house, in the surrounding yard or porch, or away from the study dwelling.

5.0 **Instructions for Executing Specific Questions, Con't.**

NOTE:

Remember to **ASK IF ANY OF THESE TIME PATTERNS ARE LIKELY TO CHANGE IN THE NEXT THREE MONTHS.** The child may be starting a Head Start Program or Pre-K class or entering Daycare in the future.

SECTION C: Main Household Questionnaire

Household Listing:

Question 1 of the Household Listing provides a way to double check the individual household listing; the number of people listed in Question 2 by name, sex, age and race should equal the total number of people living in the household.

A few respondents may be reluctant to reveal the age or race of household members. In these cases, code **8 = Refused.** In cases of mixed race parentage, code **9 = Other** and fill in the blank.

At the top of page C3, record the number on the household listing of the person who is responding to the questionnaire.

Questions 3 and 4:

These questions will help demonsrtate that the families enrolled in the study have similar income levels.

Questions 5, 6, 7:

Question 5 is asked to find out if any of the people living in the household are employed in jobs which would expose them to hazardous levels of lead or lead dust. If no one in the household is engaged in lead-related work, GO TO QUESTION 8. However, if there is a positive response to Question 5, then Questions 6 and 7 are asked to determine if those involved in lead-related work are contributing to the lead pathways in the household.

Question 8:

Question 8 is asked to find out if any of the people living in the household engage in a hobby which might generate large amounts of lead dust or lead debris which could contribute to the lead pathways in the household. The question asks about nine seperate activities. Each activity has corrosponding coding boxes. Record the **number of times per month** that each activity is performed.

Question 9:

Question 9 is asked to determine if any home improvement work has been performed which might disturb an intact lead-based paint surface.

5.0 **Instructions for Executing Specific Questions, Con't.**

SECTION C: Main Household Questionnaire, Con't

Questions 10 and 11:

Questions 10 and 11 will help identify exposure to lead in ways that are not immediately obvious. Pets can contribute to pathways for lead exposure in several ways: they can track in lead from outside soil which has been contaminated with lead; and they can disturb an intact lead-based paint surface or damage an encapsulant by chewing, scratching or gnawing household surfaces.

Question 12:

Question 12 is designed to garner some understanding of an individual household's regular house cleaning habits which may effect the accumulation of lead in household dust. The question asks about eight seperate activities. Each activity has corrosponding coding boxes. Record the **number of times in a two week time period** that each activity is performed. The interviewer may have to ask the respondent how many times a cleaning activity is performed in one week, then extrapolate the answer for a two week time period. Remember, there are decimal places in these answers. If a family vacuums two times in two weeks, code 0 2 . 0 in the appropriate coding boxes.

Questions 13 qnd 14:

Questions 13 and 14 are asked in order to discover whether or not the family uses practices which might contribute to a higher exposure to lead in plumbing. Because lead has a cumulative effect in the body, the answers to these questions will help interpret blood lead results.

SECTION D: Child Supplement Interview (1)

Section D will always be administered for the youngest eligible child, that is, the youngest child in the household who is at least six (6) months old, and who passed muster on the child eligibility questions (Section B). This could get confusing because the **Child ID's** are assigned starting with the oldest eligible child. Check your work, and your team's work ! Complete and accurate paperwork is the foundation upon which a successful research project is built !

Questions 1-4:

Questions 1 through 4 all ask about specific hand to mouth activities. Hand to mouth behavior is one of the main variables in a child's overall lead exposure. Each question has a series of amswers which are pre-coded by number and refer to the frequency of the activity observed. Choose the pre-coded answer which most closely matches the answer given by the respondent.

5.0 **Instructions for Executing Specific Questions, Con't.**

SECTION D: Child Supplement Interview (1) Con't

Questions 5, 6:

Questions 5 and 6 will help identify exposure to lead in ways that are not immediately obvious. Sometimes foods are packaged in cans that are secured with lead solder, and sometimes families unwittingly use ceramic pottery that was decorated with a lead-based glaze. These situations are exacerbated when acidic food is introduced because the acidic substance can leach the lead into the food. Because lead has a cumulative effect in the body, the answers to these questions will help interpret blood lead results.

Questions 7 and 8:

Questions 7 and 8 are asked to discover how much tap water an individual child ingests on a typical day. Looked at in conjunction with Questions 13 and 14 from the Main Household Questionnaire, the answers to these questions will help interpret a child's blood lead results.

Questions 9 and 10:

Questions 9 and 10 ask about a child's specific dietary or nutritional practices, both good and bad. An adequate quantity of milk in the diet is important as a source of calcium. Conversely, a diet which consisits of little <u>but</u> milk can contribute to anemia. Green vegetables are an important source of iron. A fatty diet is thought to increase a child's lead absorbtion.

For Question 9, ask all 6 parts of the question and record the number of ounces ingested <u>per day</u> for each part.

For Question 10, ask all 3 parts of the question and record the number of servings ingested <u>per week</u> for each part.

Question 11:

Question 11 is asked because a child who eats meals at the table is less likely to have his or her food fall on the floor and become contaminated with lead dust. Use the pre-coded answer which most closely matches that given by respondent.

Questions 12 and 13:

Questions 12 and 13 are asked to determine whether the child has been diagnosed and/or treated for anemia; a frequent indicator of elevated blood lead levels.

For Question 13, use the pre-coded answers. If the answer is "0=no","8=NA", "9=DK" then **GO TO Q. 15.** If the answer is "1,2,3=Yes", then continue with Question 14.

Question 14:

Question 14 requires the interviewer to request to see the container for the child's iron supplement. This will allow the

5.0 **Instructions for Executing Specific Questions, Con't.**

SECTION D: Child Supplement Interview (1) Con't

Question 14 (con't):

interviewer to record the exact type and recommended dosage of the iron supplement. Some doses of iron supplements are given in teaspoon amounts, some are given in dropper amounts, some may be given in tablet or other form. Record the amount given accurately. Record 8 . 8 in the coding boxes which corrospond to the non-applicable doses.

Questions 15, 16, 17, 18, 19, 20:

Questions 15 through 20 will provide the Study with baseline information on the child's existing lead history. If the answer to Question 15 is "0=no", then **GO TO Q. 21**, filling in "88" in the coding boxes for the non-applicable questions. If the answer to Question 19 is "0=no", then **GO TO Q. 21**, skipping Question 20, which asks for the date of the child's most recent chelation treatment.

Question 21:

Question 21 asks for the name of the specific clinic and specific doctor for the child. If the respondent gives a vague answer, such as "Total Health Care", the interviewer will have to ask for the clinic number, or the clinic's street address. If the child is seen primarily by an HMO of some sort, it is likely that the respondent will not be able to provide a specific doctor's name.

Question 22:

Question 22 asks who has primary responsibility for the care of the child. Use the pre-coded answers.

Questions 23 and 25:

The location options in Questions 23 and 25 correspond exactly with those on the field sample collection forms. If the child's parent or guardian says that the child has no favorite window/play area, or indicates that the child has more than one favorite window/play area, try to narrow the answer to one site by asking where the child spends most of his or her time.

Question 24:

Question 24 is asked to learn whether the child indulges in behavior at his or her favorite window which could increase his or her exposure to lead.

Question 26:

Question 26 is asked to supplement the information already known from the Household diagram.

5.0 **Instructions for Executing Specific Questions, Con't.**

SECTION D: Child Supplement Interview (1) Con't

Question 27:

Question 27 will provide backround information on the types of housing the child has lived in prior to coming to live in the study dwelling. Some types of housing are known to have higher incedences of lead dust contamination and accumulation than others. Knowing what type of housing the child has lived in will help interpret blood lead results.

The interviewer must code a total of 9 coding boxes for each of 5 parts of the Question. The first 8 coding boxes are dates: the month and year the family began occupancy at a previous address, and the month and year they ended occupancy at the previous address. The ninth coding box is to be filled in using the pre-coded answers referring to the type of housing that the family occupied during the referenced time period in each part. Only the first part of the question contains the full list of pre-coded answers. Refer back to this section, if need be, for the remaining parts of the question.

SECTION E: Child Eligibility (2,3, etc)

Section E: Questions to Assess Eligibility for an Additional Child is to be used only after the interviewer has administered the **QUESTIONS TO DETERMINE ELIGIBILITY OF HOUSEHOLD FOR STUDY** (Section A); the **QUESTIONS TO ASSESS ELIGIBILITY OF CHILD BETWEEN THE AGES OF 6 MONTHS AND FOUR YEARS** (Section B) for the youngest eligible child in the home; the **MAIN HOUSEHOLD QUESTIONNAIRE** (Section C).

Section E obtains the same information for the older children that was obtained in Section B: **QUESTIONS TO ASSESS ELIGIBILITY OF CHILD BETWEEN THE AGES OF SIX MONTHS AND FOUR YEARS**

Be sure to follow the **INSTRUCTIONS TO THE INTERVIEWER** which follow each of these questions; if the next oldest child is deemed ineligible by a positive response to any of these questions (A through F), ask about the next oldest child, again using Section E: Eligibility of Additional Child Questionnaire. If there is no other child of eligible age, diplomatically explain that the household is not currently eligible. At some point in the future we may come back to enroll this household because another family dropped out of the study, or because of other unforseen circumstances. Thank the respondent and other family members for their time.

5.0 **Instructions for Executing Specific Questions, Con't.**

SECTION F: Additional Child Supplement (2,3, etc) Con't.

again using Section E: Eligibility of Additional Child Questionnaire. If there is no other child of eligible age, diplomatically explain that the household is not currently eligible. At some point in the future we may come back to enroll this household because another family dropped out of the study, or because of other unforseen circumstances. Thank the respondent and other family members for their time.

APPENDIX F

ADDITIONAL RESUMES OF KEY PROJECT PERSONNEL

BRIAN C. ROONEY
17 West Twenty-fourth Street
Baltimore, Maryland 21218
(301) 243-5362

EDUCATION

M.S. The Johns Hopkins University, Baltimore, Md.
In computer science. (in progress)

A.B. College of the Holy Cross, Worcester, Ma.
Concentration in experimental and physio-psychology

Additional: Certificate in graphoanalysis, Felician College
Courses in public health, Johns Hopkins University

EMPLOYMENT

1989-92 **Senior Program Research Assistant**, Johns Hopkins University. Responsible for data management and analysis on three occupational health studies. Administer two VAXes and run division's local network. Advise division on computer hardware and software purchases

1987-89 **Research Assistant,** Johns Hopkins University, Baltimore, Md. Responsible for operation of industrial hygiene / epidemiological project. Established systems for data management and study protocols.

1986-87 **Research Technician**, Johns Hopkins University Baltimore, Md. Responsible for managing a mobile clinic to collect data on amateur boxers, including EEGs, evoked potentials, and neuropsychological tests. Required knowledge of IBM PC computer systems and basic computer repair.

1985-86 **Intake Counselor**, Janis Youth Programs, Portland, Or. Crisis center for runaway youth, providing intervention, information and referral, & counseling for youth and family.

1984-85 **Director of JED-Free**, Sunnyside Center, Troy, N.Y Juvenile delinquency prevention program, coordinating services for youth: school, probation, counseling, and family support.

COMPUTER EXPERIENCE

Languages include Pascal, SAS, PAL, Macro Assembly Language.
Knowledge of IBM/PC and VAX/VMS operating systems.
Trained in VMS mastery series and Pathworks network management

REFERENCES

Available upon request

RESUME'

William E. Derbyshire, Jr.
P.O. Box 41
Aberdeen, Maryland 21001

Home phone: (410) 273-0933

EDUCATIONAL BACKGROUND

University of Baltimore
B.A. Jurisprudence (cum laude)

EMPLOYMENT BACKGROUND

1992-present Kennedy Krieger Institute
Baltimore MD Position: Project manager

1989-1992 Riverside Mental Health Associates
Aberdeen MD Position: Business director

1985-1989 Old Bay Transfer Co.
Bel Air MD Position: Vice president

1976-1985 Park-United Van Lines
Aberdeen MD Position: General manager

COMMUNITY/BUSINESS AFFILIATIONS

Perryman Community Association - Vice president
Harford County Power Plant Review Board - Member
Aberdeen Hotel Tax Committee - Member
Aberdeen Fire Department - active member, former board member, former finance committee member
Maryland Movers and Warehousemans Association - Former board member

OTHER RELEVANT INFORMATION

Strengths include written, verbal, and inter-personal skills as well as extensive supervisory experience.

Experienced in writing business computer programs in BASIC language; i.e. billing, payroll, etc.
Experienced in a variety of computer applications including DBMS, Paradox, Harvard Graphics, WordPerfect, HG Project Manager, SPSS/PC, and particularly Lotus.

Completed thirty credit hours toward a masters degree in public administration; have successfully completed comprehensive exam required for graduation.

EMPLOYMENT DESCRIPTION

July,1992- Present — KENNEDY KRIEGER INSTITUTE, Baltimore MD
Position: Project Manager, Lead Abatement R&M Study

Serve as point of contact for USEPA prime contractor to provide requisite project management-financial/business information.

Prepare and submit official EPA financial and management deliverables to the USEPA prime contractor.

Preparation, execution, and review of budget activities including projections of short and long term project requirements, staffing patterns, and production.

Assist with the preparations of technical documents and participate in related activities.

Review computer and software requirements and provide support to staff. Supervise and monitor material purchasing and equipment acquisition.

Serve, with other staff members, as liaison with other institutions, government agencies, and project collaborators.

June, 1989- July, 1992 — RIVERSIDE MENTAL HEALTH ASSOCIATES, Aberdeen MD
Position: Business director

Responsibilities included all administrative, non-therapeutic functions of this private mental health agency, which was comprised of psychiatrists, psychologists, and licensed social workers. This included direct supervision of 3-5 non-professional personnel, financial management, and agency relations.

Extensive experience in the oversight of local, state, and federal contracts and review of procedures to ensure compliance.

Instituted budget preparation and oversight procedures and initiated financial projection methods.

Recruited professional staff members.

April, 1985- June, 1989 — OLD BAY TRANSFER CO., INC., Bel Air MD
Position: Vice-president

Directly supervised administrative staff, administered all financial operations, and directed budget preparation.

Served as corporate point of contact for the Military Traffic Management Command; required detailed knowledge of DoD shipping/storage regulations.

Negotiated numerous corporate, state, and federal contracts; required knowledge of government bidding/contract procedures and requirements.

Supervised claims analysis and settlement activities and customer service.

1976- 1985 — PARK-UNITED VAN LINES, Aberdeen MD
Position: General manager

Directly supervised staff of 25-40 employees, administered all financial operations, and directed budget preparation.

Developed and implemented vehicle, equipment, and personnel safety programs.

Supervised warehousing and trucking operations, physical plant maintenance, and fixed fire protection systems.

Negotiated numerous corporate, state, and federal contracts; required knowledge of government bidding/contract procedures and requirements.

Supervised risk management, claims analysis and settlement activities, and customer service.

Instituted automated billing and payroll procedures.

APPENDIX I

PROTOCOL FOR

GRAVIMETRIC ANALYSIS OF DUST AND SOIL SAMPLES

Changes to the protocol are as follows;

1. **The quality control section has been modified to reflect the fact that humidity is no longer considered a problem to the gravimetric analysis during this study. Data available at the Trace Metals laboratory show that the 100 mL Teflon liners can be in agreement ± 0.002 g before and after field sampling and that the Teflon liners will not pick up moisture during gravimetric analysis.**

2. **Changes in the sampling system from cassettes to 100 mL liners have been included in the section 6.0.**

3. **Gravimetrics data will be stored in Paradox files.**

PROTOCOL FOR

GRAVIMETRIC ANALYSIS OF DUST AND SOIL SAMPLES

1.0 SUMMARY

1.1 Settled house dust and homogenized soil samples collected for lead analysis are analyzed after overnight oven drying and weighing. The samples are dried at 110°C in a convection oven and cooled for 40 mins before weighing. The data is entered electronically in a Balancetalk file and sample ID numbers are scanned using a barcode reader. Calculations are done in a Paradox table into which all data is exported.

2.0 APPARATUS AND MATERIALS

2.1 Mettler AM100 balance interfaced with XPAC-M and Mettler GA44 printer for automatic printing of sample numbers, weights and dates. Maximum capacity of the balance is 100 g.

2.2 Static eliminators.

2.3 100 mL Teflon microwave digestion liners acid washed and dried.

2.4 Balancetalk software and barcode reader system. The system will be used to record the sample ID#, tare weight and loaded weight of digestion liners electronically.

2.5 VWR 1305U convection oven.

2.6 Tongs for handling liners.

3.0 QUALITY CONTROL

3.1 Calibrate the balance as recommended in the Operators Manual using the 100 mg weight. After calibration use the 20 mg weight as a check weight.

3.2 Calibration will be carried out once every day or more if there is a deviation from protocol. The balance will be left

on after calibration until the end of the day. This will allow the electronics to remain stable.

3.3 For each batch, a check weight of 20 mg will be used every ten samples to monitor instrument precision. Each batch will be bracketed by an initial and final 20 mg check weight. The check weight will be accurate to ± 0.0003 g otherwise the weighings will be repeated.

4.0 CALIBRATION OF BALANCE

4.1 Refer to the Operators Manual for calibration of balance.

4.2 100 mg weight will be used for calibration.

4.3 The check weight used will be 20 mg.

4.4 After calibration leave the balance on all day. This will stabilize the electronics.

4.5 Use the forceps provided to handle the weights.

5.0 ALTERNATIVE BALANCE

5.1 The Mettler balance, Model No. H20T will be used as the backup balance. Maximum capacity is 160 g.

6.0 METHOD FOR DUST SAMPLES

6.1.1 The liners are acid washed, oven dried at 110 °C cooled, weighed and barcoded as part of the sample preparation. The liners are then capped and placed in ziplock bags and sent into the field for sampling.

6.1.2 Select enough used sampling liners to complete at least one batch (20) and place on a clean lab bench. Remove one liner from its bag and examine to see that the cap is still secure. If not then notify the QC officer and the lab supervisor and fill out a deviation from protocol form. Do not use that sample.

6.1.3 Remove one liner and the sheet of bar code labels from its bag. Place one bar code label on the lab traceability form. Remove the liner cap and rinse the undersurface into the same liner with a few mL of deionized water. Discard the cap and retain the ziplock bag with the barcode labels.

6.1.4 Repeat for all 20 samples.

6.1.5 Use one initialized liner as a method blank and two initialized liners for spike and spike duplicates. Initialized liners are liners that have been tare weighed and assigned bar code numbers and placed in ziplock bags.

6.1.6 Weigh 0.500 ± 0.020 g of prepared SRM#2704 into a clean liner and place with the batch of 20 samples in the oven. Place any blank liners which have been initialized for method blank, spike and spike duplicates in the oven. Place bar codes on the batch QC traceability form and indicate which sample is method blank, spike and spike duplicate.

6.1.7 Place the batch of 24 liners in the preheated oven (110°C) over night or 8 hours. Barcodes will remain on the liners throughout this stage of the method.

6.1.8 After 8 hours, remove the batch of 24 samples with tongs and allow to cool to room temperature.

6.1.9 After 40 minutes, reweigh the liners. Scan the barcode label and remove before weighing. The blanks should be within ± 2 mg of the initialized weights. If the blanks are outside the acceptable range a deviation from protocol form will be completed and the QC Officer will be informed.

6.1.10 Proceed with sample digestion according to Appendix R, Protocol for the Digestion of Dust, Soil and Water Samples Using Microwave Digestion.

6.2 METHOD FOR SOIL SAMPLES

6.2.1 Refer to Appendix R, Protocols for Preparation of Dust, Soil and Water for Total Lead Analysis Using Acid Digestion, Page 15 for homogenization of soil samples.

6.2.2 The liners are acid washed, oven dried at 110 °C and cooled.

6.2.3 Weigh 0.500 ± 0.005 g of homogenized soil into each liner of a batch of 20 soil samples. As each sample is weighed place a corresponding barcode label on the batch traceability form.

6.2.4 Select four liners for QC samples. Weigh out 0.500 ± 0.005 g of SRM#2704 into a liner. The remainder of the liners will be targeted for method blank, spike and spike duplicate samples. As each QC sample is prepared place a corresponding barcode label on the batch traceability form.

6.2.5 Proceed with sample digestion according to Appendix R, Protocol for the Digestion of Dust, Soil and Water Samples Using Microwave Digestion.

7.0 DEVIATIONS FROM PROTOCOL

7.1 Report deviations from protocol on the form provided.

7.2 Inform the lab supervisor and QC Officer of deviations from protocol. Inform the EPA's WAM in writing of deviations from protocol.

8.0 DIGESTION OF SAMPLES

8.1 Samples are digested using the procedure outlined in Appendix R.

9.0 DATA MANAGEMENT\TRACEABILITY

9.1 Tared and loaded weights of liners are entered into Balancetalk files and transferred into Paradox files for data analysis, transfer and traceability.

9.2 Sample ID's are entered using a barcode method. Barcodes for dust samples will be denoted with a D..... and those for soil with an S....

9.3 Liners and/or samples can be traced at any stage of the process using traceability files found in Paradox. The Data Manager can access the status of samples for inquiries or interim reports.

APPENDIX J

PROTOCOL FOR COLLECTION OF WIPE DUST SAMPLES

PROTOCOL FOR COLLECTION OF WIPE DUST SAMPLES

1.0 Introduction

Wipe samples of settled dust will be collected during the R&M study to investigate the relationship between wipe samples of the type employed in past research at the Kennedy Krieger Institute and vacuum-dust samples collected with the modified HVS3 cyclone sampler. Towards this end, seventy-five pairs of side-by-side wipe and vacuum samples are planned for collection in equal numbers from uncarpeted floors, window sills and window wells as specified in the QAPjP. In addition, one wipe dust field blank and one field duplicate wipe sample will be collected in each of the dwellings where side-by-side wipe/vacuum pairs are collected. Wipe sampling will also be performed at immediate post-R&M as required by the Maryland Department of the Environment.

2.0 Sampling Equipment and Supplies

The following materials will be used to collect wipe samples:

- "Wet Ones" disposable wipes. If "Wet Ones are no longer available substitute "Wash-a-Bye Baby" brand wipes.
- Washable or disposable templates (inside dimensions, 1 ft. by 1 ft.);
- Steel measuring tape;
- Marking pen;
- 50 mL screw cap Starsted centrifuge tubes or equivalent;
- 1-quart (qt) and 1-gallon (gal) ziplock plastic bags;
- Disposable vinyl gloves (powderless);
- Plastic trash bags;
- Clip board;
- Tweezers and stainless steel scoop;
- Pencil sharpener;

- Knee pads;
- Masking tape (1" wide) (for securing templates);
- Wipe Sampling Kits (one per sample) with barcode labels (at least 8 identical labels per sample with a unique sample number);
- Wipe Dust Sample Collection Forms;
- Sample Traceability Form;
- House diagram with sampling plan.

3.0 Wipe Sampling Kits

Wipe sampling kits will consist of a 1-qt and 1-gal ziplock bags, 50 mL screw cap centrifuge tubes and a strip of at least 8 identical barcode labels. A barcode label will be affixed to the 1-qt ziplock bag and the centrifuge tube. The centrifuge tube will be inserted into the 1-qt ziplock bag. This bag along with the remainder of the corresponding barcode labels will be inserted into the 1-gal ziplock bag and sealed. For the remainder of this protocol, the 1-qt ziplock bag will be referred to as the "inner" bag and the 1-gal ziplock bag will be referred to as the "outer" bag.

In addition, one package of disposable wipes will be included with the kits. Wipe sampling kits will be provided to the field team by the Sample Custodian. The kits should not be opened until needed in the field to prevent contamination of the sampling materials.

4.0 Wipe Sampling Protocol

When wipe and vacuum samples are collected side-by-side, always collect the wipe sample first. The following procedure will be used to wipe sample floor surfaces:

- Don disposable shoe covering prior to entering the dwelling;
- Surfaces to be wipe sampled will be selected by the KKI Team Leader according to sampling plan on the house diagram;

- Position a clean 1-ft^2 template on the floor surface to be sampled and secure the template with tape;
- Don a pair of powderless vinyl gloves;
- Remove the inner ziplock bag containing the centrifuge tube from the outer bag of the sampling kit;
- Take the package containing the wipes, open the lid, remove one wipe and discard it in the trash bag. Use the next wipe from the container to collect the wipe sample;
- Place the wipe flat on the surface within the sample area as defined by the template. Using an open flat hand with the fingers together, wipe the marked surface in an overlapping "S" pattern, first side to side and then front to back so that the entire 1-ft^2 area is covered;
- Fold the wipe in half with the sample side folded in and repeat the wiping procedure within the marked surface area on one side of the folded wipe;
- Fold the wipe again with the sample side folded in;
- Insert the folded wipe into the 50 mL screw cap centrifuge tube, close the tube, place the tube into the "inner" plastic bag and seal;
- Remove two corresponding barcode labels from the wipe sampling kit (outer ziplock bag). Affix one label to the Wipe Sample Collection Form and the other to the sample traceability form;
- Remove the vinyl gloves and dispose of them in the trash bag;
- Reinsert the 1-qt ziplock bag containing the sample into its original "outer" 1-gal ziplock bag and seal;
- Record descriptive information about the sample on the appropriate Wipe Sample Collection Form including the depth and width of the sampled area. (This function will be performed by the Kennedy Krieger Institute team leader).

The wipe sampling procedure must be modified for window sills and window wells due to their limited size and geometry. They are generally too narrow to accommodate a 1-ft^2 template and cannot be wiped using the flat-hand technique. **When wipe and vacuum samples are collected side-by-side, always collect the wipe sample first.** (**Reminder:** In the case of side-by-side wipe and vacuum samples the area to be sampled is a randomly selected right or left half of the window sill or window well).

The following procedure will be used to collect wipe samples from window sills and wells.

- Don a pair of disposable vinyl gloves;
- Remove one wipe from the package and discard it in the trash bag. The next wipe will be used to collect the wipe sample;
- Place the wipe flat on the surface to be sampled. Holding the fingers together and flat against the sill, wipe the measured surface back and forth twice. Due to limited space, window wells will be wiped by applying pressure to the wipe using the fingertips;
- Fold the wipe in half with the sample side folded in and repeat the wiping procedure within the marked surface area on one side of the folded wipe;
- Fold the wipe again with the sample side folded in;
- Remove the prelabled 1-qt ziplock bag. Take the centrifuge tube from the ziplock bag and unscrew the cap. Place the cap back into the bag;
- Insert the folded wipe into the 50 mL screw cap centrifuge tube, close the tube, place the tube into the 1-qt ziplock bag and seal; **Note:** Prior to closing the tube, use the tweezers and/or the scoop to collect any large particulate material/paint chips that may be left behind after wiping. Put the large particulate material/paint chips into the tube and then close the tube. Material other than particulate material/chips should be excluded from the sample (e.g. nails, insects, cigarette butts etc.)
- Measure the depth and width of the area sampled and record the measurements on the sampling data form as required;

- Remove the vinyl gloves and dispose in the trash bag;

- Remove two corresponding barcode labels from the sampling kit. Affix one label to the appropriate Wipe Sample Collection Form and the other to the Field Sample Traceability Form;

- Reinsert the 1-qt ziplock bag containing the sample into the 1-gal ziplock bag and seal;

- Record all requested information on the appropriate Wipe Dust Collection Form. (This function will be performed by the KKI team leader).

5.0 Preparation of Field Blank Sample

One wipe dust field blank sample will be collected per home in dwellings from which the wipe/vacuum pairs are collected. The field blank will consist of a disposable wipe that is handled using the identical procedures used for the field samples except that no sample is collected. The following procedures will be used:

- Don a pair of disposable vinyl gloves;

- Remove a prelabeled 1-qt ziplock bag from one of the wipe sampling kits;

- Remove one disposable wipe from the container and discard it in the trash bag. The next wipe will be used for the field blank;

- Fold the wipe in half twice;

- Take the centrifuge tube from the ziplock bag and unscrew the cap. Place the cap back into the bag;

- Insert the folded wipe into the 50 mL screw cap centrifuge tube, close the tube, place the tube into 1-qt ziplock bag and seal;

- Remove the vinyl gloves and dispose in the trash bag;

- Remove two corresponding barcode labels from the same sampling kit. Affix one label to the appropriate Wipe Sample Collection Form and the other to the Field Sample Traceability Form;

- Reinsert the 1-qt ziplock bag containing the blank sample into the 1-gal ziplock bag and seal.

- Store and transport the field blank with the regular field samples.

6.0 Collection of Field Duplicate Samples

One wipe dust field duplicate sample will be collected per home in dwellings from which the wipe/vacuum pairs are collected. The wipe field duplicate will consist of a **floor** wipe sample that is collected side-by-side with the routine **floor wipe** sample using the identical procedures described in section 4.0. In order to link the routine sampling data of the side-by-side samples, place the bar code label of the field duplicate sample on the Wipe Dust Collection Form used for the routine sample adjacent to it. This will create the bridge between the two data sets. Field duplicate samples will be handled and transported with the regular wipe samples.

For the main study, side-by-side settled dust samples will be collected using both wipe and vacuum sampling techniques. When wipe and vacuum samples are collected side-by-side, always collect the wipe sample first.

7.0 Contamination Avoidance

The following work practices will be instituted to prevent cross contamination between the houses sampled and between each sample collected within the house:

- Each member of the field team will don disposable shoe coverings prior to entering the housing unit;

- Clean vinyl gloves (powderless) will be donned prior to collecting each wipe sample and will be disposed of after each sample is collected;

- The templates and measuring tape will be cleaned with a disposable wet wipe between each use. Disposable type templates are used once and then disposed of between samples;

- Sampling kits are not opened until just prior to use in the field.

8.0 Deviations from the Wipe Sampling Protocol

Every attempt shall be made to follow this wipe dust collection protocol. Deviations from the sampling protocols may compromise the data quality and completeness objectives of the project. Deviations from the protocols will generally fall into two categories: inadvertent deviations (procedural errors); and deliberate deviations (modifications to the protocol in response to unusual conditions encountered in the field).

In the case of <u>any</u> deviation from the protocol, the sampling team shall fully document the deviation on the Dust Wipe Sample Collection Form in the comment space provided and immediately notify the Outreach Coordinator, the Project Manager, and the QC Officer. In the case of inadvertent deviations from protocol, corrective action(s) shall be taken to ensure that the situation is not repeated. If possible, samples affected by the inadvertent deviation (e.g. sample is spilled in the field) should be recollected in accordance with the specified protocol prior to leaving the site. Note that for each field voided sample, a corresponding barcode label should be placed on the Field Traceability Form in one of the spaces reserved for field voided sample barcode labels.

The Outreach Coordinator and QC Officer shall be notified by the sampling team when field conditions found at the sampling site do not allow full compliance with the protocol or when the protocol does not appear to apply to the situation. The condition/ situation shall be fully documented in a field notebook. The Outreach Coordinator will in turn notify the Project Manager.

Any permanent changes/modifications in this formal sampling protocol must be approved in advance in writing. In the event that permanent changes/modifications are made, field teams will receive copies of the modified written protocol and training as needed.

APPENDIX L

PROTOCOL FOR COLLECTION OF VACUUM DUST SAMPLES

1.0 INTRODUCTION

1.1 Representative samples of settled house dust will be collected from floors (carpeted and uncarpeted), window sills and window wells and other surfaces such as interior and exterior entrance ways, air ducts, and upholstery. The samples will be collected by a cyclone sampler, the modified HVS3 (Figure 1), which was developed and validated for the EPA by Envirometrics Inc. and Cascade Stack Sampling Systems and modified to suit the needs of the R & M study. Several modifications were made to the HVS3 cyclone sampler to make it more portable for possible use as a field sampling device. First, a more portable vacuum, the "Dirt Devil", was used. Second the surface of the cyclone was coated with a thin layer (2 thousandths of an inch) of Teflon[r]. The Teflon[r] coating is expected to prevent the build up of static electricity and reduce the potential of sample loss and to prevent the possibility of any aluminum (a potential interferant in the measurement of Pb by ICP) from entering the sample from the cyclone. Thirdly, a PVC (or Tygon) sampling arm was attached to the cyclone to enable collection of dust from household surfaces. Lastly, to facilitate attachment of the microwave digestion liner, vacuum hose, and sampling nozzle to the cyclone sampler the inlets were modified so that they fit the internal diameter of the liner, hose and sampling nozzle at their respective points of attachment. The liner fits directly onto the cyclone and can be removed and capped when sampling is complete. Sampling time is two minutes.

2.0 APPARATUS AND MATERIALS

2.1 Modified HVS3 cyclone dust sampler made from aluminum and coated with Teflon[r]. The body is held together by one stainless steel clamp which can be removed for cleaning (Figure 1).

2.2 16 inch long PVC sampling nozzles (3/4" I.D.) and 3/4" PVC elbow tubing.

2.3 16 inch long flexible Tygon sampling nozzles (xx I.D.) which will be used in locations where the rigid PVC nozzle is not practical.

2.4 Dirt Devil vacuum sampler (Model#103) with hose and shoulder straps.

2.5 Microwave Teflon^{r} PFA (Perfluroalkoxyethylene) liners (100 mL capacity) with low density polyethylene caps. The Teflon^{r} PFA liners are acid washed, oven dried, cooled to room temperature, preweighed, capped and packed in double ziplock bags with sheets of at least eight identical barcode labels. These kits will be prepared by the sample custodian or by field teams. The liner is attached to the cyclone body by an aluminum extension which exactly fits the internal diameter of the liner. As an added precaution the liner may be clamped using a stainless steel quick release toggle clamp (Figure 1).

2.6 Steel measuring tape.

2.7 1 ft^{2} disposable templates.

2.8 Timing device.

2.9 Large plastic trash bags.

2.10 Dust Vacuum Collection Forms (Floors/Air Ducts/Upholstery; Windows; and QC) and Sample Traceability forms.

2.11 Vinyl powderless gloves and shoe coverings.

2.12 Extension cords.

2.13 Wash-a-Bye Baby brand wipes, alcohol free, 6in. x 6.75in.

2.14 Kimwipes; Kimberly-Clark No. 34155, 4.5 in x 8.5 in.

2.15 Disposable low density polyethylene caps for the microwave liners. The caps are manufactured locally for the Kennedy Krieger Institute.

2.16 House diagram with sampling plan.

2.17 Tongue depressors (or similar supply) for use in cleaning the inside of the cyclone with the wet wipes.

2.18 Stick for supporting window sashes in an open position.

2.19 1" masking tape for securing disposable templates.

2.20 Tweezers and stainless steel scoop.

2.21 Extra Teflon® gaskets and elbows for cyclone.

2.22 Disposable Dirt Devil vacuum bags (paper).

2.23 Knee Pads.

2.24 Rubber washers for airtight sealing of the Teflon® liners to the cyclone.

3.0 VACUUM SAMPLING KITS

3.1 Vacuum sampling kits will consist of 100 mL digestion Teflon® PFA liners which have been cleaned according to the Protocol for Glassware/Plasticware Preparation (Appendix X), dried, cooled to room temperature and preweighed, barcoded, and placed in 1 qt ziplock bags which are then placed in 1 gallon ziplock bags. One set of at least eight identical barcode labels will be included with each Teflon® PFA liner.

4.0 TRANSFER OF SAMPLING KITS

4.1 Sample collection kits will be prepared in advance as required by field and laboratory staff.

4.2 Each team will select as many microwave Teflon® PFA sampling liners as will be required for a work day plus an additional ten percent as backup.

5.0 VACUUM SAMPLING

5.1 Before entering the house don shoe coverings

5.2 Vacuum sampling of surfaces will be carried out as instructed by the field team leader based on the sampling plan on the house diagram. Use the disposable template to outline the sampling area for floors. Secure the template with masking tape. For surfaces where the template does not fit use a measuring tape to measure the area sampled. For window sills and window wells take the sample without using a template. In R&M dwellings, collect window sill and window well samples from the left halves of these surfaces at Pre-intervention and from the right halves of these surfaces at immediate post-R&M. In the case of side-by-side wipe and vacuum dust samples, collect the wipe dust sample first.

5.3 Clean and assemble the Modified HVS3 cyclone dust sampler as follows (Figure I);

5.3.1 Remove the clamp from the cyclone sampler body and set aside the Teflon® gasket. If present, remove the clamp holding the liner to the cyclone and set aside. Remove the rubber O-ring seal and clean or replace.

5.3.2 Separate the two parts (cone and body) of the cyclone sampler.

5.3.3 Clean the inside surface of the cyclone and elbow with a clean Wash-a-Bye Baby wipe and discard the used wipe. Dry surfaces using a clean Kimwipe. Use the tongue depressor for pushing the wipe into hard to reach areas.

5.3.4 Reassemble the cyclone sampler and replace the Teflon® gasket and clamp. Clean the gasket with a wet wipe before replacement.

5.4 Don a clean pair of powderless gloves in order to next handle the Teflon® PFA liners.

5.5 Remove a digestion Teflon® PFA liner and cap from the ziplock bag and compare the bar code numbers on the liner with those on the sheet of labels (If the numbers do not match then do not use the liner package. Select another one). Place a bar code on the appropriate sample collection form (dust, soil, water, wipe).

5.6 Remove the cap from the Teflon® PFA liner and place it in the 1 qt ziplock bag. Attach the Teflon® PFA liner.

5.7 Retrieve a clean sampling nozzle from the container and attach it to the cyclone (see Figure 1). For areas that cannot be sampled with the rigid PVC nozzle use the flexible Tygon nozzle. This will allow easier access to these areas (see Figure 1).

5.8 Attach the Dirt Devil vacuum cleaner hose to the cyclone body as shown in Figure 1.

5.9 Run an extension cord from the nearest 110 V outlet to the sampling location and plug in the Dirt Devil.

5.10 Remove and discard (in waste bag) extraneous items such as broken glass, cigarette butts, insects, nails, tacks etc. using the tweezer and scoop.

5.11 Turn on the power and start the stop watch. Use overlapping passes (at least 50% overlap), first left-to-right and then front-to-back over the entire area designated for sampling. After two minutes stop sampling and let the vacuum run another 10 seconds and then turn off the power. In the case of composites the vacuum is run for the extra 10 seconds only after collecting dust from the last of the composite sampling locations.

Note: the sampler must be held vertically throughout the entire sampling process until removal of the PFA liner.

5.12 After sampling discard the disposable template(s).

5.13 Carefully remove the Teflon® PFA liner from the cyclone sampler and replace the cap securely. Replace the PFA liner in the 1 qt ziplock bag.

5.14 Place the 1 qt ziplock in bag in the 1 gallon ziplock bag and store in a large white plastic bag.

5.15 Place a corresponding barcode label on the Field Traceability Form. Place a barcode on the Field Collection Form. Complete the field collection form and traceability form.

6.0 FIELD BLANK AND TRIP BLANK SAMPLES

6.1 One field blank (FB) will be collected in each dwelling at each sampling campaign. A field blank sample is collected by going through all the process of sampling without turning on the vacuum. Follow steps 5.3 through 5.9 above.

7.0 CONTAMINATION AVOIDANCE

7.1 Each member of the field team will don disposable shoe coverings before entering the dwelling.

7.2 Soil samples will not be collected until all the dust samples have been collected in the dwelling.

7.3 Clean vinyl powderless gloves will be used for each vacuum sample.

7.4 The cyclone and elbow will be cleaned between samples.

7.5 The sampling nozzle will be changed between samples.

7.6 New disposable templates will be used for each sample.

7.7 The Dirt Devil electric cord and the extension cord when used will be cleaned between home visits with Wash-a-Bye Baby wipes.

7.8 A disposable paper dust bag will be used inside the Dirt Devil cloth bag. This bag will be replaced at the end of each day.

7.9 The Dirt Devil vacuum will be cleaned at the end of each day, including the vacuum bag housing surfaces.

8.0 TRACEABILITY

8.1 Each sample collected must be identified by a unique bar code label and described on the appropriate sample collection form.

8.2 The Field Traceability Record (FTR) is used to transfer samples to the laboratory. The sample receiver will ensure that the number of samples correlates with the number of barcodes on the FTR and that the sample ID numbers match before signing the transferral of samples to the Trace Metals Laboratory. If not then the field team leader must account for the discrepancy by filling in the comments section of the FTR.

9.0 DEVIATIONS FROM FIELD SAMPLING PROTOCOLS

Every attempt shall be made to follow this collection protocol. Deviations from the sampling protocols may compromise the data quality and completeness objectives of the project. Deviations from the protocols will generally fall into two categories: inadvertent deviations (procedural errors); and deliberate deviations (modifications to the protocol in response to unusual conditions encountered in the field).

In the case of <u>any</u> deviation from the protocol, the sampling team shall fully document the deviation on the Dust Vacuum Collection Form in the comment space provided and immediately notify the Outreach Coordinator, the Project Manager, and the QC Officer. In the case of inadvertent deviations from protocol, corrective action(s) shall be taken to ensure that the situation is not repeated. If possible, samples affected by the inadvertent deviation (e.g. sample is spilled in the field) should be recollected in accordance with the specified protocol prior to leaving the site. Note that for each field voided sample, a corresponding barcode label should be placed

on the Field Traceability Form in one of the spaces reserved for field voided sample barcode labels.

The Outreach Coordinator and QC Officer shall be notified by the sampling team when field conditions found at the sampling site do not allow full compliance with the protocol or when the protocol does not appear to apply to the situation. The condition/ situation shall be fully documented in a field notebook. The Outreach Coordinator will in turn notify the Project Manager.

Any permanent changes/modifications in this formal sampling protocol must be approved in advance in writing. In the event that permanent changes/modifications are made, field teams will receive copies of the modified written protocol and training as needed.

10.0 CALCULATIONS

10.1 The weight of the sample is calculated as follows:

$$W = T_2 - T_1$$

Where T_2 = The weight of the liner + sample (after drying)
T_1 = The tare weight of the same oven dried liner before sampling.

Percentage recovery by weight can be calculated from a known weight of sample is applied to a 1 ft² clean vinyl tile and collected using the above protocol. The percentage is calculated as;

$$\% \text{ Rec} = \frac{T_2 - T_1}{W_1} \times 100$$

Where W_1 = Weight of material applied to the surface

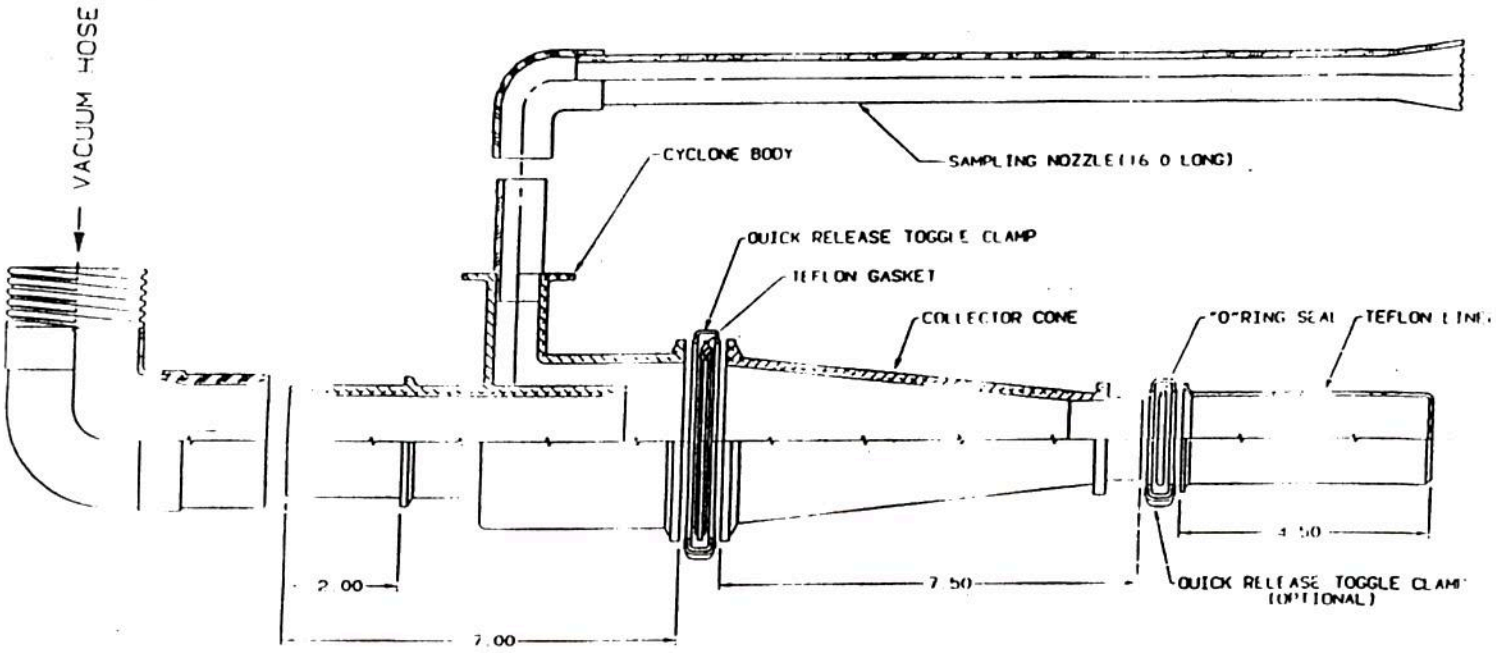

FIGURE 1 HVS3 CYCLONE SAMPLER(MODIFIED)